

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

**ADDENDUM NO. 1
for
MISCELLANEOUS PERMANENT BEST
MANAGEMENT PRACTICES ON OAHU
PROJECT NO. HWY-O-02-11**

The following amendments shall be made to the Bid Documents:

A. SPECIFICATIONS

1. Replace Pages 657-1a through 657-5a dated 4/18/12 with the attached Pages 657-1a through 657-5a dated 6/13/12.

B. PLANS

1. Replace Plan Sheet Nos. 31, 32, 33, 34 and 35 with the attached Plan Sheet Nos. ADD. 31, ADD. 32, ADD. 33, ADD. 34 and ADD. 35.


C. PRE-BID MEETING MINUTES

1. Attached are the June 7, 2012 Pre-bid Meeting Minutes and Attendance Sheet for your information.

D. NPDES NOTICE OF INTENT

1. Attached is the Notice of Intent that has been filed for the project for your information.

Please acknowledge receipt of this Addendum No. 1 by recording the date of its receipt in the space provided on page P-4 of the Proposal.



GLENN M. OKIMOTO, Ph.D.
Director of Transportation

DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PREBID CONFERENCE MINUTES

PROJECT: Miscellaneous Permanent Best Management Practices on Oahu

PROJECT NO.: HWY-O-02-11

DATE: June 7, 2012

TIME: 1:00PM

LOCATION: Oahu District Office Conference Room, 727 Kakoi Street

MINUTES

Introductions

Scope

- The project includes the installation of a structural BMP device and Bioswales that may require the temporary removal of guardrail. Contractor shall restore any removed guardrails to existing conditions.
- During the installation of the structural BMP on Kaneohe Bay Drive the existing drainage system shall remain live at all times.

Permits

- NPDES Notice of Intent has been filed, a copy shall be available as part of the addendum.

Addendum

- No significant changes in design approach are anticipated.

Questions/Discussion:

- Plant establishment period is excluded from the 180 day contract duration.
- Existing utilities shown are based upon the best available information, Contractor shall verify locations of utilities.
- The maintenance of the structural BMP at Kaneohe Bay Drive shall be the Contractor's responsibility until the completion of the project.

Meeting concluded at 1:20PM

1 Make the following section a part of the Standard Specifications :

2
3 **"SECTION 657 - BIOSWALES**
4

5
6 **657.01 Description.** This section describes furnishing and installing bioswales.

7
8 **657.02 Materials.**
9

10 Planting Soil 617.01

11
12 Untreated Permeable Base Course 703.04

13
14 Perforated Plastic Pipe 706.12

15
16 Reinforcing Steel 709.01

17
18 Geotextiles for Permanent Erosion Control Applications 716.07

19
20 Class A concrete, used for installing bioswales, shall conform to Section 601
21 – Structural Concrete.

22
23 Steel plates and bars for cleanout steel frame and cover shall conform to
24 ASTM A 36. Stainless steel screws for cleanout steel frame and cover shall
25 conform to ASTM A 193.

26
27 Non-perforated pipe shall conform to perforated pipe requirements, except
28 for perforation provisions.

29
30 Bioretention Soil Mixture (BSM) shall be a homogeneous mixture composed
31 by loose volume of 40% Coarse Sand, 30% Base Soil, and 30% Fine Bark. BSM
32 shall conform to the following:

33
34 (a) Components. Components of BSM shall be sampled, tested and
35 approved before mixing as follows:

36
37 (1) Coarse Sand. MSMT 356. Coarse Sand shall be washed
38 silica sand or crushed glass that conforms to ASTM Fine
39 Aggregate C-33. Coarse Sand shall include less than 1% by
40 weight of clay or silt size particles, and less than 5% by weight of
41 any combination of diabase, greystone, calcareous or dolomitic
42 sand.

43
44 (2) Base Soil. Base Soil shall be tested and certified by the
45 producer to conform to the following requirements:
46

COMPOSITION - BASE SOIL				
TEST PROPERTY	TEST METHOD	TEST VALUE AND AMENDMENT		
Debris	—	No observable content of cement, concrete, asphalt, crushed gravel or construction debris when inspected.		
Grading Analysis	T 87	Sieve Size		Passing by Weight Minimum %
		2 in.		100
		No. 4		90
		No. 10		80
Textural Analysis	T 88	Particle		% Passing by Weight
		Size	mm	Minimum Maximum
		Sand	2.0 – 0.050	50 85
		Silt	0.050 – 0.002	5 45
		Clay	less than 0.002	5 10
Soil pH	D 4972	pH of 5.7 to 6.9.		
Organic Matter	T 194	1.0 to 10.0 % by weight.		
Soluble Salts	EC1:2 (V:V)	500 ppm (1.25 mmhos/cm) or less.		
Harmful Materials	—	920.01.01(a)		

- (3) Fine Bark. Fine bark shall be the bark of hardwood trees that is milled and screened to a uniform particle size of 2 inches or less. Fine Bark shall be composted and aged for 6 months or longer, and be free from sawdust and foreign materials.

A 1 to 2 lb sample of Fine Bark shall be submitted to the Engineer for examination.

- (b) Composition. BSM shall be sampled and tested according to the requirements of MSMT 356 and conform to the following:

COMPOSITION- BIORETENTION SOIL MIX (BSM)						
TEST PROPERTY	TEST METHOD	TEST VALUE AND AMENDMENT				
Debris	—	920.01.05(a)(2)				
Textural Analysis	T 88	Particle		% Passing by Weight		
		Size	mm	Minimum	Maximum	
		Sand	2.0 – 0.050	55	85	
		Silt	0.050 – 0.002	—	20	
		Clay	less than 0.002	1	8	
Soil pH	D 4972	pH of 5.7 to 7.1.				
Organic Matter	T 194	Minimum 1.5 % by weight.				
Nutrient Analysis and Soluble Salts	Mehlich-3	Concentration				
		Element	Minimum		Maximum	
			ppm	FIV	ppm	FIV
		Calcium (Ca)	32	25	no limit	no limit
		Magnesium (Mg)	15	25	no limit	no limit
		Phosphorus (P)	18	25	92	100
		Potassium (K)	22	25	no limit	no limit
		Sulfur (SO4)	25	n/a	no limit	no limit
	EC1:2 (V:V)	Soluble Salts	40	n/a	500	n/a

BSM that exceed the maximum phosphorus concentration or fails other composition requirements will not be accepted, and shall not be delivered or used as BSM.

BSM that is stored shall be protected from weather under tarp or shed, with appropriate BMP measures in place.

657.03 Construction.

(A) **Excavation.** Excavate trenches to dimensions and grade indicated in contract documents.

Bioswale trench shall be excavated when soil is dry and friable. Construction in wet soil will cause smearing and compaction which will decrease the soil's ability to absorb stormwater.

The sides and bottom of the trench shall be raked to a depth of 1 inch to expose natural soil structure and to remove and smeared and compacted soil surface before geotextile is installed.

(B) **Geotextiles.** Geotextile for bioswales shall consist of woven fabric

and conform to Section 716.07.

Protect geotextiles from direct sunlight, mud, dust, debris, and temperatures over 140 degrees F, during transport and storage.

Place geotextile in trench, overlapping successive sheets 18 inches minimum. Maintain full geotextile contact with trench surfaces. Remove and replace geotextile that becomes torn or damaged, maintaining 18-inch overlap requirement in all directions.

(C) **Backfilling.** Place No. 2 aggregate, in horizontal layers not exceeding 12 inches in thickness before compaction, to depth indicated in contract documents. Compact each lift with at least two passes of vibrating pad or drum type compactor. Place perforated pipe with perforations down. Join pipe sections securely with appropriate couplings or bands.

Fold geotextile over top of No. 7 aggregate, with minimum 12-inch overlap. Backfill geotextile within five days of installation.

Remove and replace geotextile that becomes torn or damaged, maintaining 18-inch overlap requirement in all directions.

Install non-perforated pipe of type and size indicated in contract documents.

Construct cleanouts, monitoring wells and bioswale outlets as indicated in contract documents.

Place planting soil on side slopes of bioswale to match existing grades. Place planting soil in accordance with Subsection 617.01 – Planting Soil

657.04 Measurement. Bioswales will be paid on a lump sum basis. Measurement for payment will not apply.

657.05 Payment. Engineer will pay for accepted bioswales on a contract lump sum basis. Payment will be full compensation for work prescribed in this section and contract documents including removal of existing AC swales and obstructions, construction of bioswale to existing inlet connections, construction of bioswale outlets, construction of bioswale cleanouts, construction of bioswale monitoring wells, grass restoration and all material, equipment, labor, tools, required to complete the work.

Engineer will pay for each of following pay items when included in proposal schedule:

128	Pay Item	Pay Unit
129		
130	Bioswale ____	Lump Sum
131		
132		
133	END OF SECTION 657	